

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: DONOVAN

Serial Number: 09/371,354

Filed: August 10, 1999

For: METHOD FOR TREATING CARDIAC
MUSCLE DISORDERS



) Examiner: Bridget Bunner

) Art Unit: 1647

#9
JGJ
12/14/01

DECLARATION UNDER 37 C.F.R. SECTION 1.132

I, JOHN C. LONGHURST, declare as follows:

1. I am over the age of twenty one, competent to testify in a court of law, and could and would testify to the matters set forth below before the United States Patent and Trademark Office, if required to do so.

2. I understand that this declaration will be used to assist prosecution of United States patent application serial number 09/371,354 (or a continuation or continuation in part of that patent application), including to assist to overcome a rejection in the July 5, 2001 office action in serial number 09/371,354.

3. I graduated from the University of California, Davis in 1969 with a bachelor of science degree in zoology (honors) and in 1973 I received an M.D. degree from the University of California, Davis. In 1974 I received a Ph.D from the University of California, Davis in cardiovascular-pulmonary physiology where I was also a post doctoral fellow in cardiology. In 1978 I completed a two year post doctoral fellowship (NIH) in cardiology at the University of Texas Health Science center at Dallas, Texas. I am currently a professor of medicine and chief of the division of cardiology at the University of California, Irvine, California, where I am also a professor in the departments of physiology, biophysics and pharmacology. I also hold the position of professor in the Center for Biomedical Engineering at the University of California, Irvine, California.

4. I am a Board certified physician in internal medicine as well as in cardiovascular disease. I hold many appointments and affiliations, sit on the editorial boards of a

number of peer reviewed medical journals, have received numerous grants and awards to conduct research into various aspects of cardiovascular disease, and I have published extensively in the field of cardiology. Attached as Attachment A is a list of my publications.

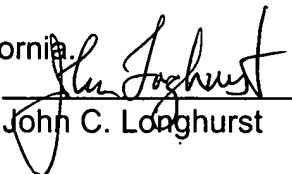
5. By training and experience I am an expert in the field of cardiovascular medicine, including treatment of cardiac disorders such as bradycardia.

6. I have carefully and thoroughly read U.S. patent application serial number 09/371,354. In my opinion this patent application provides sufficient disclosure and teaching so that a cardiologist of ordinary skill can successfully treat bradycardia by administration of a botulinum toxin into an existing pericardial space of a human patient (i.e. in the presence of a pericardial effusion of sufficient magnitude to allow access to the pericardial space) to thereby increase the heart rate of a patient with symptomatic bradycardia.

7. Additionally, in my opinion matters such as the specific time period in which the toxin should be administered or for how long, and the specific dosage of the botulinum toxin to use entail consideration of factors such as the patient's size, weight, age, and disease severity which factors are routine considerations determined on a patient by patient basis by a cardiologist of ordinary skill who has knowledge of the therapeutic use of a botulinum toxin.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that any such willful false statements may jeopardize the validity of the above-identified application or any patent issuing therefrom.

Executed this 5 day of November, 2001, at Irvine, California.


John C. Longhurst

CURRICULUM VITAE

JOHN CHARLES LONGHURST, M.D., Ph.D.

DATE AND PLACE OF BIRTH: March 18, 1947, Napa, California

NATIONALITY: Citizen, U.S.A.

MARITAL STATUS: Married, three children

SOCIAL SECURITY NO.: 553-64-3880

ADDRESS: Department of Medicine
University of California Irvine
Med. Sci. 1, Room C240
Irvine, CA 92697

EDUCATION:

1965 - 1966 University of California, Davis
Major: Zoology

1966 - 1967 University College, Nairobi, Kenya, East Africa
Majors: Zoology, Botany and Geography

1967 - 1969 University of California, Davis
B.S. in Zoology with Honors, March, 1969

1969 - 1973 University of California, Davis, School of Medicine
M.D., June, 1973

1969 - 1974 University of California, Davis
Graduate Group in Physiology
Ph.D. in Cardiovascular-Pulmonary Physiology, June, 1974

POSITIONS:

1967 - 1974 Laboratory Assistant for Barry Wilson, Ph.D.,
Department of Avian Science, University of California, Davis

1970 Laboratory Technician for Lawrence Rabinowitz, Ph.D.,
Department of Human Physiology, University of California, Davis

1973 - 1974 Post-doctoral Research Fellow, Division of Cardiology, Department of Internal
Medicine, School of Medicine, University of California, Davis
on a Giannini Foundation Fellowship

1974 - 1975 Internship in Internal Medicine
Peter Bent Brigham Hospital, Boston, Massachusetts

1975 - 1976 Junior Assistant Resident in Internal Medicine
Peter Bent Brigham Hospital, Boston, Massachusetts

1976 - 1978 Post-doctoral Fellowship (NIH) in Cardiology
University of Texas Health Science Center at Dallas

ATTACHMENT A

FACULTY APPOINTMENTS:

1978 - 1979	Faculty Associate in Internal Medicine University of Texas Health Science Center at Dallas
1979 - 1980	Instructor in Internal Medicine and Physiology University of Texas Health Science Center at Dallas
1980 - 1982	Assistant Professor of Internal Medicine and Physiology University of Texas Health Science Center at Dallas
1982 - 1987	Associate Professor of Medicine University of California, San Diego
1987 - 1998	Professor of Medicine and Human Physiology Chief, Division of Cardiovascular Medicine University of California, Davis
1998 - Present	Professor of Medicine Chair, Department of Medicine University of California, Irvine
1999 - Present	Professor, Departments of Physiology and Biophysics Department of Pharmacology College of Medicine University of California, Irvine
2001 - Present	Professor, Center for Biomedical Engineering The Henry Samueli School of Engineering University of California, Irvine

BOARD CERTIFICATION: Diplomate, American Board of Internal Medicine, 1977
Diplomate, Subspecialty of Cardiovascular Disease, 1979

**LICENSES AND
SPECIALTY PERMITS:**

Fluoroscopy X-ray Supervisor and Operator: California 1990 - present.
State Licensure: California #G49035, 1982 - present

HONORS AND AWARDS:

1969	Bachelor of Science in Zoology with Honors
1972 - 1973	U.S. Public Service Predoctoral Traineeship
1973	Loren D. Carlson Medical Student Research Award
1973 - 1974	Giannini Foundation Fellowship Award
1974	Loren D. Carlson Graduate Physiology Research Prize
1978 - 1981	NIH-NHLBI Young Investigator Research Award
1981 - 1986	Established Investigatorship, American Heart Association
1981	Teaching and Clinical Contribution Award, University of Texas Health Science Center at Dallas
1982	Councilor, Southern Section of the American Federation for Clinical Research
1983	First alumnus recipient, Alpha Omega Alpha, National Medical Honor Society, University of California, Davis
1984	Theodore Tagstad Award, Santa Barbara County Chapter, American Heart Association
1990	Distinguished Alumnus Award, University of California, Davis, School of Medicine
1993	Physician Volunteer of the Year Award, American Heart Association, California Affiliate

PROFESSIONAL SOCIETIES:

American College of Cardiology, Fellow
American College of Physicians, Fellow
American College of Sports Medicine, Member
American Federation for Medical Research
American Heart Association, Council on Basic Science
American Heart Association, Council on Circulation
American Heart Association, Council on Clinical Cardiology
American Physiological Society, Cardiovascular Section, Fellow
American Society for Clinical Investigation
Western Society for Clinical Investigation
Alpha Omega Alpha Honor Medical Society
Western Association of Physicians, Member
Society for Neuroscience

INSTITUTIONAL SERVICE:

University of California, Davis

1988 - 1995 Physiology Graduate Group Steering Committee, University of California, Davis; Vice Chair 1992; Recruitment Committee - 1989-1990; Chair membership Committee, 1993-1995
1988 - 1990 Advisory Committee for Multicellular Systems/Organismal Biology, Cardiovascular and Pulmonary Biology Subcommittee, University of California, Davis - Member
1992 Search Committee for Dean, School of Medicine - Member
1996 - 1998 Future Directions in Graduate Education Task Force - Member

School of Medicine, Davis

1988 - 1990 Cardiac Surgery Programmatic Subcommittee, University of California Davis Medical Center - Ex-officio Member
1990 - 1995 Faculty and Professional Affairs Committee of the School of Medicine University of California, Davis; Chairman 1992-93, 1993-94 and 1994-95
1992 Search Committee for Chair, Department of Gastroenterology - Member
1992 Faculty Incentive Committee - Member
1992 - 1998 UCDMC Heart Center Steering Committee, Long Range Planning Committee and Chest Pain/ER Task Force (1992-1993) - Member
1993 - 1998 M.D. - Ph.D. Advisory and Medical Scholars Committee - Chair (1993-1995)
1994 - 1996 Research Affairs Committee - Chair
1994 - 1995 Strategic Planning Committee on Research, Work Group on Integration of Basic Research, Clinical Research and Patient Care - Chair
1996 - 1998 LCME Accreditation Committee - Member
1997 Research Resource Allocation committee - Chair
1997 Search Committee for Chair, Department of Pediatrics - Member
1997 LCME Sub-Committee on Basic Sciences - Member

Department of Internal Medicine, Davis

1988 - 1989 Search Committee for Chief, Division of Pulmonary Medicine and Critical Care, University of California Davis Medical Center - Chair
1990 - 1998 Financial Advisory Committee - Member
1993 - 1998 Internship Selection Committee - Member
1993 - 1994 Clinical Series Subcommittee - Member
1994 - 1996 Residency Clinical Competency Committee - Member

Division of Cardiovascular Medicine, Davis

- 1987 - 1998 Program Director, Current Concepts in Cardiology, sponsored by University of California, Davis Office of Continuing Medical Education and American College of Cardiology
- 1987 - 1998 Fellowship Interview Committee - Member

University of California, Irvine

- 1998 - 1999 Cost Reduction Committee - Member
- 1998 - 1999 Complementary Medicine Committee - Member
- 1998 - 2001 Health System Steering Committee - Member
- 1998 - 2001 Clinical Relationships Implementation Committee - Member
- 1998 - 2000 Clinical Development Sub-Committee - Member
- 1998 - 2001 Council of Clinical Chairs - Member
- 1998 - 2001 Dean's Advisory Board - Member
- 1998 - 2001 Research Advisory Group - Member
- 1999 - 2000 Susan Samueli Center for Complementary and Alternative Medicine- Co-Director
- 2000 Search Committee for Director (CEO) of University of California Irvine, Medical Center
- 2000 Search Committee for Chief Information Officer of University of California Irvine Health Systems

NATIONAL SERVICE:

- 1985 NIH, Cardiovascular Renal Study Section - *ad hoc* Member
- 1986 - 1990 NIH, Clinical Sciences II Study Section - Member
- 1987 NIH, Program Project Site Visit to University of Washington
- 1987 NIH, Cardiovascular Pulmonary Study Section - *ad hoc* Member
- 1987 - 1989 AHA, Executive Committee, Council on Circulation
- 1987 - 1990 AHA, Executive Committee, Council on Circulation - Member
- 1989 - 1991 AHA, Executive Committee, Credentials Committee - Chair
- 1990 - 1995 NIH, Reviewers Reserve
- 1992 NIH, Program Project Site Visit Committee to University of Iowa
- 1993 NIH, Experimental and Cardiovascular Sciences Section - *ad hoc* Member
- 1995 - 1999 NIH, Experimental Cardiovascular Sciences Study Section - Member (1995-1998); Chair (1998 - 1999)
- 1996 NIH, Program Project Review for Vanderbilt University
- 1997 NIH, Program Project review for University of Texas, Southwestern
- 1994, 1997, 1998 VA, *ad hoc* Grant Reviewer
- 1997 - 2000 ASCI, Institutional Representative
- 1998 - 1999 AHA - Council on Clinical Cardiology, Credentials Committee - Member
- 1998 - 1999 NIH, Experimental Cardiovascular Sciences Study Section - Chairperson
- 1999 - 2001 AHA - National Advocacy Coordinating Committee - Member
- 2000 NIH Experimental Cardiovascular Sciences Study Section - *ad hoc* Member
- 2000 NCAM Data Safety and Monitoring Board - *ad hoc* Member
- 2001 NHLBI -Clinical Cardio Vascular Sciences Study Section - *ad hoc* Member
- 2001 - 2003 AHA - National Board of Directors

STATE SERVICE:

- 1986 - 1987 AHA, California Affiliate, Student Research Subcommittee - Member
- 1987 - 1991 AHA, California Affiliate, North Peer Review Subcommittee - Member; Chairman 1988-1991

1989 - 1993	AHA, California Affiliate, Research Committee - Vice Chairman 1990-91; and Vice President and Chair for Research 1991-1993
1988	AHA, California Affiliate, Coordinator, Student Research Presentations California Affiliate
1989 - 1990	AHA, California Affiliate, Golden Empire Chapter - Research Allocation Committee
1989 - 1993	AHA, California Affiliate, Golden Empire Chapter - Board of Directors
1990 - 1992	AHA, California Affiliate - Public Affairs Committee
1990 - 1997	AHA, California Affiliate - Board of Directors
1990	University of California Tobacco-Related Disease Research Program - Peer Review Committee
1990 - 1995	AHA, California Affiliate - Joint Task Force for Enterprise Planning
1991 - 1998	AHA, California Affiliate - Budget & Finance Committee -Member
1994 - 1995	AHA, California Affiliate Program Committee - Vice Chair (1993 - 1994), Vice President and Chair (1994 - 1996)
1994 - 1996	Board of Directors, East Bay Institute for Research (EBIRE), Veterans Administration, Martinez, CA
1993 - 1994	AHA, California Affiliate - Vice Chair, Program Committee
1994	AHA, California Affiliate - Commission of the Stroke <i>ad hoc</i> Task Force
1995 - 1997	AHA, California Affiliate - Physician and Physician Scientist Volunteer and Strategic Planning Task Force
1996 - 1999	AHA, California/Western States Affiliate - President Elect (1996-1997);
1997 - 1999	AHA, Western States Affiliate - Board of Directors
1997 - 1998	AHA, Western States Affiliate - Budget and Finance Committee - Member Strategic Planning Task Force - Member
1997 - 1998	AHA, Western States Affiliate - President
1997 - 1998	AHA, California Affiliate - President; Nominating Committee
1998 - 2001	AHA, California Affiliate - Orange County Chapter, Board of Directors
2001	ACC Writing Committee, Expert Consensus Document on Alternative Medicine
2001 - 2003	AHA, Western States Affiliate, Executive Committee Board of Directors

EDITORIAL BOARDS:

1988 - 1996	Associate Editor, <i>Medicine and Science in Sports and Exercise</i>
1996 - 1998	Advisory Board, <i>The Guide</i>
1996 - Present	Editorial Board, <i>Circulation</i>
1994 - 1996	Editorial Board, <i>Sports & Medicine</i>
1997 - 1999	Editorial Board, <i>Journal of Applied Physiology</i>

AREAS OF INTEREST:

Cardiovascular neural reflex control mechanisms from somatic (skeletal muscle) and visceral regions including the heart and abdominal organs. Integrative, central neural regulation of the autonomic nervous system, with reference to cardiovascular reflex responses and including the reflex basis of acupuncture.

GRANT SUPPORT (Principal Investigator unless noted otherwise):

National Institutes of Health

1978 - 1981	RO1 - HL22669; Young Investigator Grant "Cardiovascular Effects from Visceral Afferents" (total direct costs \$90,000)
1982 - 1986	PO1 - HL06296; "Response and Adaptation to Exercise," Program Project Grant Principal Investigator Jere Mitchell. Unit 7 Principal Investigator, "Cardiovascular Adaptation to Chronic Exercise, Central and Peripheral Mechanisms"
1983 - 1986	RO1 - HL30222; "Exercise Training effects on Regional Blood Flow" (\$335,674)
1983 - 1986	NS20165; "Visceral and Somatic Autonomic Reflexes" (\$450,037)
1985 - 1989	RO1 - HL17682; "Ischemic SCOR," SCOR Principal Investigator John Ross, Jr., Unit 8 Principal Investigator, "Mechanisms of Stimulation of Cardiac Afferent Fibers" (317,800)

1986 - 2002 RO1 - HL36527; "Mechanisms of Visceral and Somatic Reflexes" (1986-89 \$380,301) (1989-1992)(1996-2002 \$933,442)
 1988 - 1995 RO1 - HL39114; "Exercise and Collateral Circulation" "Function and Growth of Coronary Collateral Vessels" (\$1,025,475)
 1992 - 1998 T32 - HL07682; "Training in Cardiovascular and Neurophysiology" (\$1,218,795)
 1994 - 1999 RO1 - HL51428; "Regulation of Cardiac Afferent Activity by O₂ Radicals" (returned 1995) (\$972,309)
 1995 - 2000 PO1 - HL52165; "Neurocontrol of Cardiovascular and Respiratory Systems," Principal Investigator, Unit 3, "Regulation of Cardiac Afferents by O₂. Radicals" and Administrative Core (\$2,933,783)
 2000 - 2003 RO1 - HL63313; "CNS Autonomic Regulation by Electroacupuncture, " (\$750,000)

American Heart Association

1979 - 1980 AHA Texas Affiliate 79-; "Cardiovascular Effects from Visceral Afferents" (\$6,000)
 1980 - 1983 AHA National 80-784; "Mechanisms of Gastric Cardiovascular Reflexes" (\$70,400)
 1981 - 1986 AHA National 81-155; Established Investigatorship "Mechanisms of Visceral Cardiovascular Reflexes" (\$150,000)
 1983 - 1984 AHA California Affiliate 83-84; "Cardiovascular Reflexes from Contracting Muscle - Role of [K⁺]" (\$18,753)
 1983 - 1985 AHA California Affiliate 83-S124; "Role of Bradykinin and Prostaglandins and the Exercise Pressor Reflex"
 1983 - 1986 AHA National 83-758; "Mechanisms of Visceral Cardiovascular Reflexes" (\$105,000)
 1988 - 1991 AHA National 88-946; "Mechanisms of Anaphylatoxin-induced Cardiovascular Dysfunction" (\$90,000)

Other Grant Support

1987 - 1988 Rosenfeld Heart Foundation (\$10,000)
 1991 - 1992 Medical Center Research Fund, Hibbard E. Williams Grant "Roles of Complement and Granulocytes in Myocardial Ischemia" (\$50,000)
 1993 - 1994 Rosenfeld Heart Foundation (\$10,554)
 1997 - 1998 Rosenfeld Heart Foundation (\$10,000)
 2000 - 2002 Charles A. Dana Foundation, "Neural Mechanism of the Effect of Acupuncture on Myocardial Ischemia" (\$100,000)
 2000 - 2002 Susan Samueli Center for Complementary and Alternative Medicine, "Effect of Electroacupuncture on Myocardial Ischemia" (\$65,00)
 2000 - 2002 Susan Samueli Center for Complementary and Alternative Medicine, "Central Neural Mechanisms of Electroacupuncture" (\$75,000)

Patents

8/13/96 Patent #5,544,656: Method and Apparatus for Myocardial Wall Measurement

PUBLICATIONS

1. 1973 Zelis R, JC Longhurst, RJ Capone and G Lee: Peripheral circulatory control mechanisms in congestive heart failure. *American Journal of Cardiology*, 32:481-490.
2. 1974 Longhurst JC, RJ Capone, DT Mason and R Zelis: Comparison of blood flow measured by plethysmograph and flowmeter during steady state forearm exercise. *Circulation*, 49:535-540.
3. 1974 Zelis R, JC Longhurst, RJ Capone and DT Mason: A comparison of regional blood flow and oxygen utilization during dynamic forearm exercise in normal subjects and patients with congestive heart failure. *Circulation*, 30:137-143.
4. 1975 Longhurst JC, RJ Capone and R Zelis: Evaluation of skeletal muscle capillary basement membrane thickness in congestive heart failure. *Chest* 67:195-198.
5. 1976 Longhurst JC, W Gifford and R Zelis: Impaired forearm oxygen consumption during static exercise in patients with congestive heart failure. *Circulation*, 54:477-480.
6. 1979 Longhurst JC and WL Kraus: Exercise induced ST elevation in patients without myocardial infarction. *Circulation*, 60:616-629.
7. 1979 Longhurst JC and R Zelis: Cardiovascular responses to local hindlimb hypoxemia: relation to the exercise reflex. *American Journal of Physiology*, 237:H359-H365.
8. 1980 Longhurst JC, AR Kelly, WJ Gonyea and JH Mitchell: Echocardiographic left ventricular masses in distance runners and weight lifters. *Journal of Applied Physiology*, 48:154-162.
9. 1980 Longhurst JC, JH Mitchell and MB Moore: The spinal cord ventral root: an afferent pathway of the hindlimb pressor reflex in cats. *Journal of Physiology (London)*, 301:467-476.
10. 1980 Longhurst JC, JH Ashton and GA Iwamoto: Cardiovascular reflexes resulting from capsaicin-stimulated gastric receptors in anesthetized dogs. *Circulation Research*, 46:780-788.
11. 1980 Longhurst JC, AR Kelly, WJ Gonyea and JH Mitchell: Cardiovascular responses to static exercise in distance runners and weight lifters. *Journal of Applied Physiology*, 49:676-683.
12. 1981 Aung-Din R, JH Mitchell and JC Longhurst: Reflex 'O'-adrenergic coronary vasoconstriction during hindlimb static exercise in dogs. *Circulation Research*, 48:502-509.
13. 1981 Longhurst JC, HL Spilker and GA Ordway: Cardiovascular reflexes elicited by passive gastric distension in anesthetized cats. *American Journal Physiology*, 240:H539-H545.
14. 1981 Longhurst JC, AR Kelly, WJ Gonyea and JH Mitchell: Chronic training with static and dynamic exercise: cardiovascular adaptation and response to exercise. *Circulation Research* 48(Suppl I):I171-I178.
15. 1981 Longhurst JC, R Aung-Din and JH Mitchell: Static exercise in anesthetized dogs, a cause of reflex alpha-adrenergic coronary vasoconstriction. *Basic Research in Cardiology*, 76:530-535.
16. 1981 Schutte JE, JC Longhurst, FA Gaffney, BC Bastian and CG Blomqvist: Total plasma creatinine: an accurate measure of total striated muscle mass. *Journal of Applied Physiology*, 51:762-766.
17. 1982 Kaufman MP, GA Iwamoto, JC Longhurst and JH Mitchell: Effects of capsaicin and bradykinin on afferent fibers with endings in skeletal muscle. *Circulation Research*, 50:133-139.

18. 1982 Ashton J, GA Iwamoto, JC Longhurst and JH Mitchell: Reflex cardiovascular depression induced by capsaicin injection into the canine liver. *American Journal of Physiology*, 242:H955-H960.
19. 1982 Kaufman MP, GA Ordway, JC Longhurst and JH Mitchell: Reflex relaxation of tracheal smooth muscle by thin-fiber muscle afferents in dogs. *American Journal of Physiology*, 243:R383-R388.
20. 1982 Longhurst JC and J Ibarra: Sympathoadrenal mechanisms in hemodynamic responses to gastric distension in cats. *American Journal of Physiology*, 243:H748-H753.
21. 1982 Ordway GA, JH Mitchell and JC Longhurst: Bradykinin stimulates pancreatic afferents to activate the cardiovascular system. *Transactions of the Association of American Physicians* xcv:229-236.
22. 1983 Ordway GA and JC Longhurst: Cardiovascular reflexes arising from the gallbladder of the cat: Effects of capsaicin, bradykinin and distension. *Circulation Research*, 52:26-35.
23. 1983 Kaufman MP, JC Longhurst, RJ Rybicki, JH Wallach and JH Mitchell: Effects of static muscular contraction on impulse activity of groups III and IV afferents in cats. *Journal of Applied Physiology*, 55:105-112.
24. 1983 Rybicki KJ, JC Longhurst and MP Kaufman: Stimulation of splanchnic afferents reflexly relaxes tracheal smooth muscle in dogs. *Journal of Applied Physiology*, 55:427-432.
25. 1984 Ordway GA, JC Longhurst and JH Mitchell: Stimulation of pancreatic afferents reflexly activates the cardiovascular system in cats. *American Journal of Physiology*, 245:R820-R826.
26. 1984 Longhurst JC: Static contraction of hindlimb muscles in cats reflexly relaxes tracheal smooth muscle. *Journal of Applied Physiology*, 57:380-387.
27. 1984 Ordway GA, DL Floyd, JC Longhurst and JH Mitchell: Oxygen consumption and hemodynamic responses during graded treadmill exercise in the dog. *Journal of Applied Physiology*, 57:601-607.
28. 1984 Longhurst JC and J Ibarra: Reflex regional vascular responses during passive gastric distension in cats. *American Journal of Physiology*, 247:R257-R265.
29. 1984 Longhurst JC, CL Stebbins and GA Ordway: Chemically induced cardiovascular reflexes arising from the stomach of the cat. *American Journal of Physiology*, 247:H459-H466.
30. 1984 Iwamoto GA, TG Waldrop, JC Longhurst and GA Ordway: Localization of the cells of origin for primary afferent fibers supplying the gallbladder of the cat. *Experimental Neurology*, 84:709-714.
31. 1984 Longhurst JC, MP Kaufman, GA Ordway and TI Musch: Effects of bradykinin and capsaicin on endings of afferent fibers from abdominal visceral organs. *American Journal of Physiology*, 247:R552-R559.
32. 1984 Horton JW, JC Longhurst, D Coln, and JH Mitchell: Cardiovascular effects of haemorrhagic shock in spleen intact and in splenectomized dogs. *Clinical Physiology*, 4:533-548.
33. 1985 Stebbins CL, RC Smith, and JC Longhurst: Effect of prostaglandins on bradykinin-induced visceral-cardiac reflexes. *American Journal of Physiology*, 249:H155-H163.
34. 1985 Stebbins CL and JC Longhurst: Bradykinin-induced chemoreflexes from skeletal muscle: implications for the exercise reflex. *Journal of Applied Physiology*, 59:56-63.

35. 1985 Musch TI, GC Haidet, GA Ordway, JC Longhurst and JH Mitchell: Dynamic exercise training in foxhounds: I. Oxygen consumption and hemodynamic responses. *Journal of Applied Physiology*, 59:183-189.
36. 1985 Longhurst JC, S Motohara, JM Atkins and GA Ordway: Function of mature coronary collateral vessels and cardiac performance in the exercising dog. *Journal of Applied Physiology*, 59:392-400.
37. 1986 Lew WYW and JC Longhurst: Substance P, 5-Hydroxytryptamine, and bradykinin stimulate abdominal visceral afferents. *American Journal of Physiology*, 250:R465-R473.
38. 1986 Stebbins CL and JC Longhurst: Bradykinin in the reflex cardiovascular responses to static muscular contraction. *Journal of Applied Physiology*, 61:271-279.
39. 1986 Longhurst JC, TI Musch and GA Ordway: O₂ consumption during exercise in dogs-roles of splenic contraction and 'O-adrenergic vasoconstriction. *American Journal of Physiology*, 251:H502-H509.
40. 1986 McKirnan MD, FC White, BD Guth, JC Longhurst and CM Bloor: Validation of a respiratory mask for measuring gas exchange in exercising swine. *Journal of Applied Physiology*, 61:1226-1229.
41. 1986 Martin SE and JC Longhurst: Evidence against high pressure, arterial baroreceptors in the abdominal viscera of cats. *American Journal of Physiology*, 251:H1283-H1291.
42. 1986 Stebbins CL, Y Maruoka and JC Longhurst: Prostaglandins contribute to cardiovascular reflexes evoked by static muscular contraction. *Circulation Research*, 59:645-654.
43. 1987 Musch TI, GC Haidet, GA Ordway, JC Longhurst and JH Mitchell: Training effects on the regional blood flow response to maximal exercise in foxhounds. *Journal of Applied Physiology*, 62:1724-1732.
44. 1987 O'Konski MS, FC White, JC Longhurst, DM Roth and CM Bloor: Ameroid constriction of the proximal left circumflex coronary artery in swine. *American Journal of Cardiovascular Pathology*, 1:69-77.
45. 1987 Longhurst JC, GA Ordway and LM Buja: Evaluation of coronary native and coronary collateral pressure gradients in the conscious dog. *American Journal of Cardiovascular Pathology*, 1:79-90.
46. 1987 Hammond HK, FC White, IO Buxton, P Saltzstein, LL Brunton and JC Longhurst: Increased myocardial β -receptors and adrenergic responses in hyperthyroid pigs. *American Journal of Physiology*, 252:H283-H290.
47. 1987 Hammond HK, FC White, LL Brunton and JC Longhurst: Association of decreased myocardial β -receptors and chronotropic response to isoproterenol and exercise in pigs following chronic dynamic exercise. *Circulation Research*, 60:720-726.
48. 1987 Longhurst JC and LE Dittman: Hypoxia, bradykinin, and prostaglandins stimulate ischemically sensitive visceral afferents. *American Journal of Physiology*, 253:H556-H567.
49. 1987 Maruoka Y, MD McKirnan, RE Engler and JC Longhurst: Functional significance of 'O-adrenergic receptors in mature coronary collateral circulation of dogs. *American Journal of Physiology*, 253:H582-590.

50. 1987 Roth DM, Y Maruoka, J Rogers, FC White, JC Longhurst and CM Bloor: Development of the coronary collateral circulation in left circumflex ameroid-occluded swine myocardium. *American Journal of Physiology*, 253:H1279-1288.
51. 1987 Roth DM, FC White, O Mathieu-Costello, BD Guth, G Heusch, CM Bloor and JC Longhurst: Effects of left circumflex Ameroid constrictor placement on adrenergic innervation of myocardium. *American Journal of Physiology*, 253:H1425-H1434.
52. 1988 Ordway GA, KR Boheler and JC Longhurst: Stimulating intestinal afferents reflexly activates the cardiovascular system in cats. *American Journal of Physiology*, 254:H354-H360.
53. 1988 Martin SE, DE Chenoweth, RL Engler, DM Roth, and JC Longhurst: C5a decreases regional coronary blood flow and myocardial function in pigs: Implications for a granulocyte mechanism. *Circulation Research*, 63:483-491.
54. 1988 Stebbins CL, B Brown, D Levin and JC Longhurst: Reflex effect of skeletal muscle mechanoreceptor stimulation on the cardiovascular system. *Journal of Applied Physiology*, 65:1539-1547.
55. 1989 McKirnan MD, CL Stebbins and JC Longhurst: Effects of chronic dobutamine administration on the response to acute exercise in dogs. *Clinical Physiology*, 9:11-20.
56. 1989 Martin SE, DM Pilkington and JC Longhurst: Coronary vascular responses to chemical stimulation of abdominal visceral organs. *American Journal of Physiology*, 256:H735-H744.
57. 1989 Stebbins CL, and JC Longhurst: Potentiation of the exercise pressor reflex by muscle ischemia. *Journal of Applied Physiology*, 66:1046-1053.
58. 1989 Brtva RD, GA Iwamoto, and JC Longhurst: Distribution of cell bodies for primary afferent fibers from the stomach of the cat. *Neuroscience Letters*, 105:287-293.
59. 1990 Fletcher MP, G Stahl, JC Longhurst: *In vivo* and *in vitro* assessment of porcine neutrophil activation responses to chemoattractants: Flow cytometric evidence for the selective absence of formyl peptide receptors. *Journal of Leukocyte Biology*, 47:355-365.
60. 1990 Rotto DM, HD Schultz, JC Longhurst, MP Kaufman: Sensitization of group III muscle afferents to static contraction by arachidonic acid. *Journal of Applied Physiology*, 68:861-867.
61. 1990 Stahl GL, EA Amsterdam, JD Symons, JC Longhurst: Role of thromboxane A₂ in the cardiovascular response to intracoronary C5a. *Circulation Research*, 66:1103-1111.
62. 1990 Stebbins CL, OA Carretero, T Mindroiu, JC Longhurst: Bradykinin release from contracting skeletal muscle of the cat. *Journal of Applied Physiology*, 69:1225-1230.
63. 1990 Roth DM, FC White, ML Nichols, SL Dobbs, JC Longhurst, CM Bloor: Effect of long-term exercise on regional myocardial function and coronary collateral development after gradual coronary artery occlusion in pigs. *Circulation*, 82:1778-1789.
64. 1991 Munch PA, JC Longhurst: Contrasting effects of vasopressin and angiotensin II on rabbit aortic baroreceptors. *American Journal of Physiology*, 260:H811-H820.
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ABSTRACTS IN PRESS

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